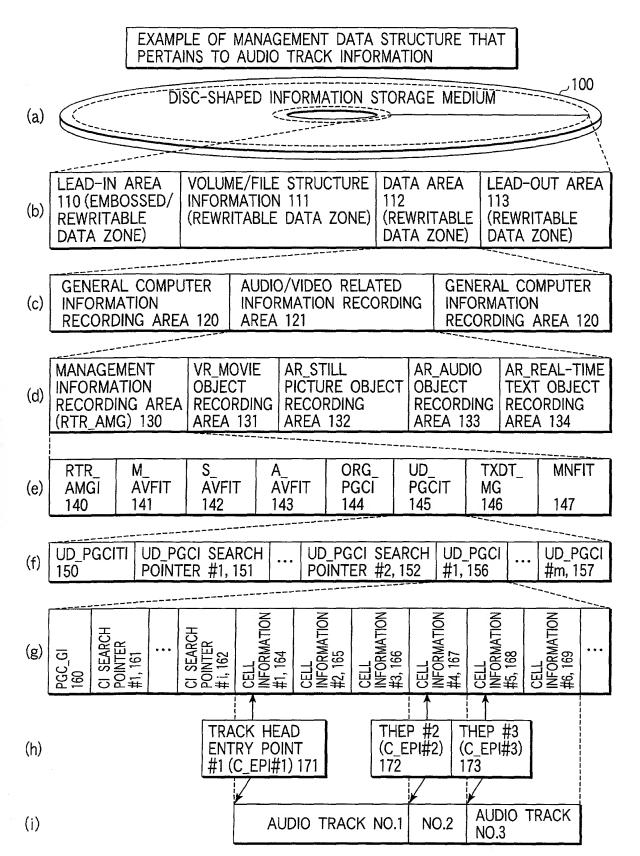
Hart Man Man Man Hall Hall

OBLON, SPIVAK, ET AL DOCKET #: 211260US2SDIV INV: HIDEO ANDO, ET AL. SHEET 1_ OF_43_



F I G. 1

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DIRECTORY STRUCTURE OF STILL PICTURE FILE, AUDIO FILE, AND TEXT FILE ASSOCIATED WITH RECORDABLE/REPRODUCIBLE AUDIO INFORMATION RECORDED IN INFORMATION STORAGE MEDIUM

ROOT DIRECTORY \ 200

SUBDIRECTORY 201

DVD_RTAV (DIGITAL VERSATILE DISC REAL-TIME AUDIO VIDEO) DIRECTORY 210

202

AR MANGR.IFO 211

(MANAGER INFORMATION OBJECT OF AUDIO RECORDING) (MANAGEMENT INFORMATION RECORDING AREA 130)

VR MOVIE.VRO 212

(MOVIE OBJECT OF VIDEO RECORDING) (VR_MOVIE OBJECT RECORDING AREA 131)

AR_STILL.ARO 213

(STILL PICTURE OBJECT OF AUDIO RECORDING; AR STILL, ARO) (AR_STILL PICTURE OBJECT RECORDING AREA 132)

AR AUDIO.ARO 221

(AUDIO OBJECT OF AUDIO RECORDING; AR AUDIO.ARO) (AR_AUDIO OBJECT RECORDING AREA 133)

AR_RT_TEXT.ARO 222

(REAL-TIME TEXT OBJECT OF AUDIO RECORDING) (AR_REAL-TIME OBJECT RECORDING AREA 134)

AR MANGR.BUP 215

(BACKUP OF MANAGER INFORMATION OF AUDIO RECORDING) (MANAGEMENT INFORMATION RECORDING AREA 130)

OTHER SUBDIRECTORIES 230

OBLON, SPIVAK, ET AL DOCKET #: 211260US2SDIV INV: HIDEO ANDO, ET AL. SHEET 3_OF_43_

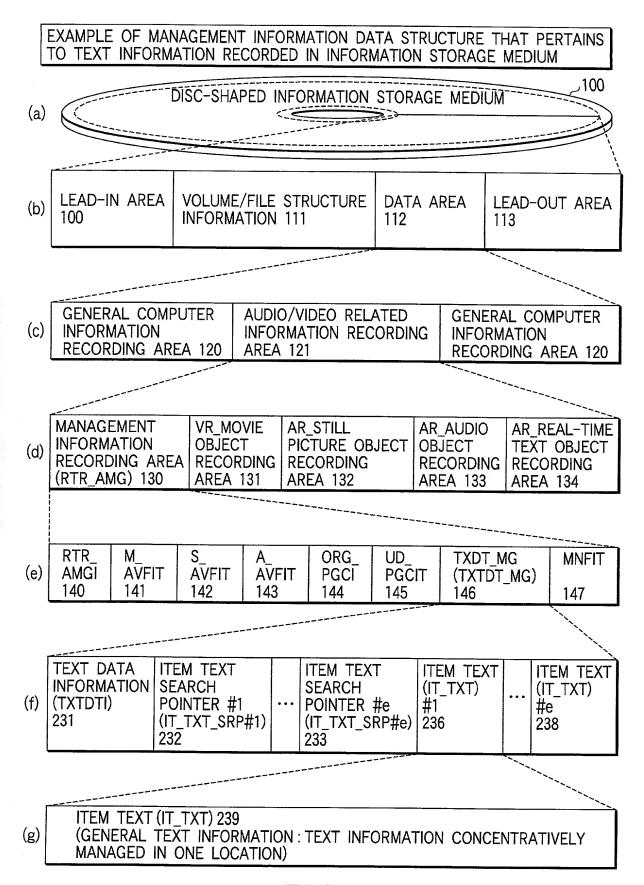
EXAMPLE OF MANAGEMENT INFORMATION DATA STRUCTURE THAT PERTAINS TO AUDIO INFORMATION RECORDED IN INFORMATION STORAGE MEDIUM

	TO AUDIC	INFORM	MATIO	V RE	CORI	DED IN I	NFOR	MATI	ON S	TORE	GE GE	MED	PERTAINS
(a)			DISC-S	SHAP		NFORMAT	ION	STOF	RAGE	MEDI	ŪM¯		100
(b)	LEAD-IN 100	I AREA			FILE TION	STRUCTU 111	JRE	DAT 112	A AF	REA	LE 11:		OUT AREA
(c)	INFORM	AL COMF IATION DING AR				D/VIDEO RMATION 121				INFO	RMA	OITA	OMPUTER N AREA 120
(d)	MANAGE INFORMA RECORD (RTR_AM	ATION ING ARE	OB A RE	_MO\ JECT CORI EA 1	DING	AR_STIL PICTURE RECORD AREA 1	E OB	JECT	OB. REC	AUDIC IECT CORDII EA 133	٧G	TEX REC	REAL-TIME T OBJECT ORDING A 134
(e)	RTR_ AMGI 140	M_ AVFIT 141	S_ AV 142			AVFIT JDFIT) 3	OR PG 144	CĪ	UD PG 145	CIT	TX MC 146		MNFIT 147
(f)	A_AVFIT INFORMATION (AUD FITI) 180	AUDIO OBJECT STREAM INFORMATION	#1 (AUD_STI#1) 181	• • •	AUDIO OBJECT STREAM	INFORMATION #k (AUD_STI#k) 182	AUDIO AV FILE	(AUDFI) 184	REAL-TIME TEXT OR IFCT	STREAM	#1, 186	•••	REAL-TIME TEXT AV FILE INFORMATION 189
(g)	AUDIO A' FILE GENERAL INFORMA (AUDFI_G	Si Pr TION (A	OBI EARCH OINTE AOBI_ RP#1)	R #1	•••	AOBI SEARCH POINTEF (AOBI_ SRP#i)	₹ # i	1 .	ECT DRMA	TION , 196	•••	INF	DIO JECT ORMATION BI) # i, 197
(h)		OBJECT AL INFOF I/AOBU_			UN	JDIO OBJ IIT ENTR OBU_ENT	Y #1	41	•••	U	NIT	ENT	BJECT RY #h IT#h) 248
(i)	AUDIO O UNIT DA SIZE (AOE 251	TA BU_SZ)	TIME (FOR	EXA	UNIT PR MPLE, 1 S RESPONDS	SEC-	+			FION RESS	I (DII 3) (M	FFERENCE AY BE

OBLON, SPIVAK, ET AL DOCKET #: 211260US2SDIV INV: HIDEO ANDO, ET AL. SHEET 4_ OF_43_

EXAMPLE OF MANAGEMENT INFORMATION DATA STRUCTURE THAT PERTAINS TO STILL PICTURE INFORMATION RECORDED IN INFORMATION STORAGE MEDIUM

	STILL PICTURE							
(a)		DISC-SHAPED) INFORMA			MEDIU	JM	100
(b)	LEAD-IN AREA 100	VOLUME/FII INFORMATIO		1	DATA AR 112	REA	LEAD-01 113	UT AREA
(c)	GENERAL COMF INFORMATION RECORDING AR	IN	JDIO/VIDEO FORMATION REA 121			INFO	ERAL CON RMATION ORDING A	
(d)	MANAGEMENT INFORMATION RECORDING ARE (RTR_AMG) 130	VR_MOVIE OBJECT A RECORDII AREA 131	PICTUI NG RECOF	RE OBJE RDING	ECT OBJ REC	AUDIC ECT CORDIN	AR_RI TEXT	EAL-TIME OBJECT ORDING
(e)	RTR_ M_ AMGI AVFIT 140 141	S_AVFIT (ASVFIT) 142	A_ AVFIT 143	ORG PGCI 144	-	CIT	TXDT_ MG 146	MNFIT 147
(f)	INFORMATION V (ASVFITI) II	TILL PICTUR OB STREAM NFORMATION 1 (ASV_STI#		VOB S	PICTURE TREAM MATION V_STI# i)		STILL PIC AV FILE NFORMAT (S_AVFI/A	į
(g)	GENERAL SE INFORMATION PC (ASVFI_GI) (A	VOGI ARCH DINTER #1 SVUI_ PP#1) 271	S_VOGI SEARCH POINTER (ASVUI_ SRP#g)	VC R #g IN #1	FILL PICT OB GROU FORMAT (ASVUI# 3	JP ION	VOB (PICTURE GROUP RMATION SVUI#g)
(h)	STILL PICTURE GENERAL INFOR (ASVU_GI) 280		VOB EN	ICTURE ITRY #1 _ENT#1)	•	V	TILL PICT OB ENTR ASVOB_EN	ΥĦ
(i)	STILL PICTURE N		I .		TURE SIZ) PART)		B_SZ) 292	



OBLON, SPIVAK, ET AL DOCKET #: 211260US2SDIV INV: HIDEO ANDO, ET AL. SHEET <u>6</u> OF <u>43</u>

WINDOW IMAGE UPON CREATION

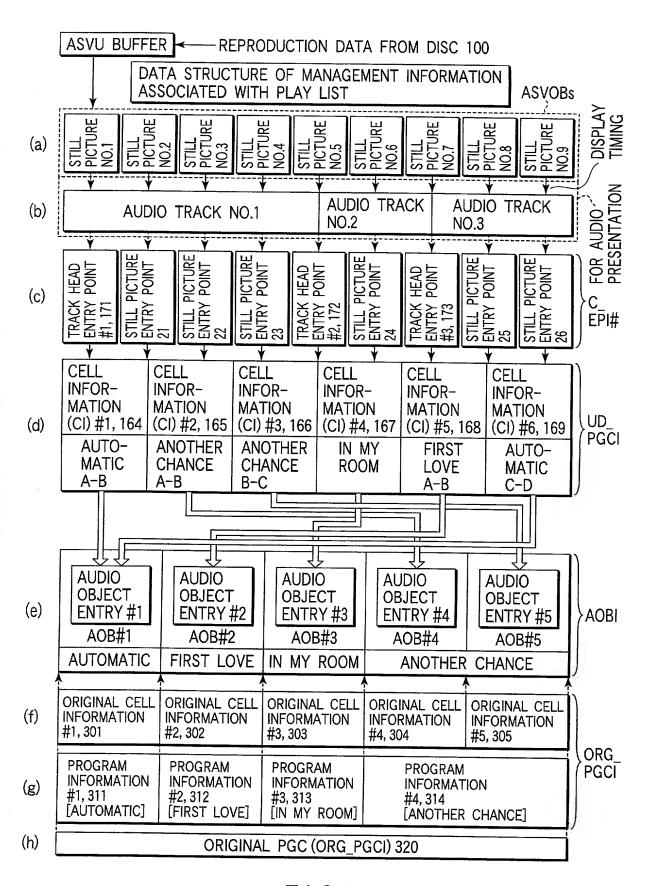
ODICINAL TRACK 1											
TDACK TITLE 2	ORIGINAL TRACK 1										
TRACK TITLE 3	PICTURE 5	DISPLAY MODE 7	TIME CHART 11								
AUTOMATIC		SLIDESHOW SEQUENTIAL	A B C D 0 45 68 107 130								
FIRST LOVE		SLIDESHOW SHUFFLE	A B								
IN MY ROOM		BROWSABLE SEQUENTIAL									
ANOTHER CHANCE	\$\begin{align*} \text{\tint{\text{\tin}\\ \text{\texi}\\ \text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\texi}\text{\text{\texi}\text{\text{\texi}\text{\text{\texi}\text{\text{\texi}\text{\text{\text{\tex{\text{\text{\text{\text{\texi}\text{\texi}\text{\texit{\te	BROWSABLE RANDOM	A B C C 108 214								
	• • • • •		•••••								

FIG. 6A

	PLAY LIST #1 2									
NEW TRACK TITLE 4	MIXING RATE 9	DISPLAY MODE 8	STILL 10	PICTURE 6						
NEW TRACK No.1 (C1 #1 164 +C1 #1 165 +C1 #1 166	AUTOMATIC A-B ANOTHER CHANCE A-B ANOTHER CHANCE B-C	SLIDESHOW SEQUENTIAL	ORIGINAL							
NEW TRACK No.2 (C1 #4 167)	IN MY ROOM	BROWSABLE RANDOM	NEWLY SET							
NEW TRACK No.3 (C1 #5 168) +C1 #6 169)	FIRST LOVE A-B & AUTOMATIC C-D	SLIDESHOW SEQUENTIAL	ORIGINAL	\$\frac{\}{\}\)						
,,,,,	• • • • •									

FIG. 6B

OBLON, SPIVAK, ET AL DOCKET #: 211260US2SDIV INV: HIDEO ANDO, ET AL. SHEET 7_ OF_43



F I G. 7

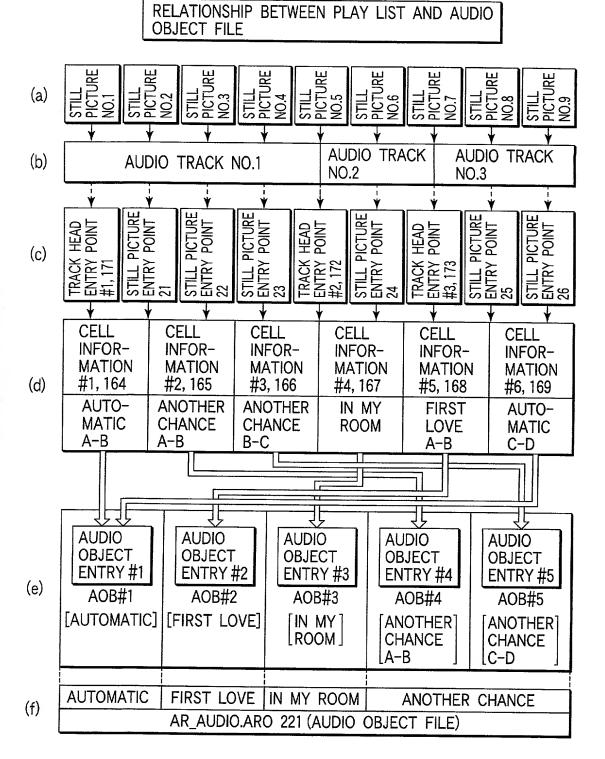


FIG.8

OBLON, SPIVAK, ET AL DOCKET #: 211260US2SDIV INV: HIDEO ANDO, ET AL. SHEET 9_OF_43_

COMPARISON OF INFORMATION CONTENTS RECORDED IN TRACK HEAD ENTRY POINT (PROGRAM INFORMATION) AND STILL PICTURE ENTRY POINT

ENTRY POINT TYPE	INFORMATION CONTENTS IN VARIOUS KINDS OF ENTRY POINTS/PROGRAM INFORMATION
	©ENTRY POINT TYPE INFORMATION (EP_TY) "IDENTIFICATION INFORMATION INDICATING TRACK HEAD ENTRY POINT OR STILL PICTURE ENTRY POINT ©INFORMATION (EP_PTM & RA_DUR) OF DISPLAY RANGE OF REPRESENTATIVE AUDIO (ENTRY POINT FOR REPRESENTATIVE AUDIO) INDICATING CONTENTS OF CORRESPONDING AUDIO TRACK "DESIGNATED BY PLAYBACK START TIME AND PLAYBACK END TIME IN CORRESPONDING AUDIO TRACK ©INFORMATION (REP_PICTI) FOR DESIGNATING THE SAVING LOCATION OF REPRESENTATIVE IMAGE THAT REPRESENTS CONTENTS OF CORRESPONDING AUDIO TRACK "DESIGNATED BY S_VOGI SEARCH POINTER NUMBER (STILL PICTURE VOB GROUP NUMBER) AND VOB ENTRY NUMBER THEREIN ©INFORMATION FOR DESIGNATING THE SAVING LOCATION OF STILL PICTURE TO BE DISPLAYED FIRST UPON PLAYBACK OF CORRESPONDING AUDIO TRACK "DESIGNATED BY S_VOGI SEARCH POINTER NUMBER (STILL PICTURE VOB GROUP NUMBER) AND VOB ENTRY NUMBER THEREIN ©TEXT INFORMATION (PRIMARY TEXT INFORMATION PRM_TXTI) UNIQUE TO CORRESPONDING AUDIO TRACK "TUNE NAME, PLAYER NAME/SINGER NAME, WRITER NAME, ETC. ©ADDITIONAL COMMENT TEXT INFORMATION (IT_TXT_SRPN) (CENTRAL TEXT INFORMATION: ITEM TEXT 237, 238) ©DISPLAY MODE OF STILL PICTURE IN CORRESPONDING AUDIO TRACK (DISPLAY MODE) "DISPLAY ORDER MODE/DISPLAY TIMING MODE ©CORRESPONDING STILL PICTURE ©RELATIONSHIP BETWEEN CORRESPONDING STILL PICTURE CONTENTS AND ORIGINAL TRACK "WHETHER SAME STILL PICTURES AS THOSE IN ORIGINAL TRACK ARE DISPLAYED OR UNIQUE STILL PICTURES DIFFERENT FROM THOSE IN ORIGINAL TRACKS ARE DISPLAYED OR UNIQUE STILL PICTURES DIFFERENT FROM THOSE IN ORIGINAL TRACKS ARE DISPLAYED OR UNIQUE STILL PICTURES DIFFERENT FROM THOSE IN ORIGINAL TRACKS ARE DISPLAYED OR UNIQUE STILL PICTURES DIFFERENT FROM THOSE IN ORIGINAL TRACKS ARE DISPLAYED OR UNIQUE STILL PICTURES DIFFERENT FROM THOSE IN ORIGINAL TRACKS ARE DISPLAYED OR UNIQUE STILL PICTURES DIFFERENT FROM THOSE IN ORIGINAL TRACKS ARE DISPLAYED OR UNIQUE STILL PICTURES DIFFERENT FROM THOSE IN ORIGINAL TRACKS ARE DISPLAYED OR UNIQUE STILL PICTURES DIFFERENT FROM THOSE IN ORIGINAL TRACKS ARE DISPLAYED OR UNI

OBLON, SPIVAK, ET AL DOCKET #: 211260US2SDIV INV: HIDEO ANDO, ET AL. SHEET <u>10</u> OF <u>43</u>

*	©ERASE INHIBITION/PROHIBITION FLAGERASE INHIBITION INFORMATION
STILL PICTURE ENTRY POINTS 21 TO 26	©ENTRY POINT TYPE INFORMATION (EP_TY) …IDENTIFICATION INFORMATION INDICATING TRACK HEAD ENTRY POINT OR STILL PICTURE ENTRY POINT ◎INFORMATION (ASVOB_ENTN) FOR DESIGNATING THE SAVING LOCATION OF STILL PICTURE TO BE DISPLAYED …DESIGNATED BY S_VOGI SEARCH POINTER NUMBER (STILL PICTURE VOB GROUP NUMBER) AND VOB ENTRY NUMBER THEREIN ◎INFORMATION (EP_PTM) FOR DESIGNATING DISPLAY TIMING OF ABOVE STILL PICTURE …DESIGNATES DISPLAY TIME INFORMATION OF CORRESPONDING AUDIO OBJECT TO ADJUST DISPLAY TIMING BETWEEN TWO OBJECTS ◎DISPLAY TIME RANGE INFORMATION (MAX_DUR & MIN_DUR) OF CORRESPONDING STILL PICTURE

FIG.9B

OBLON, SPIVAK, ET AL DOCKET #: 211260US2SDIV INV: HIDEO ANDO, ET AL. SHEET 11 OF 43

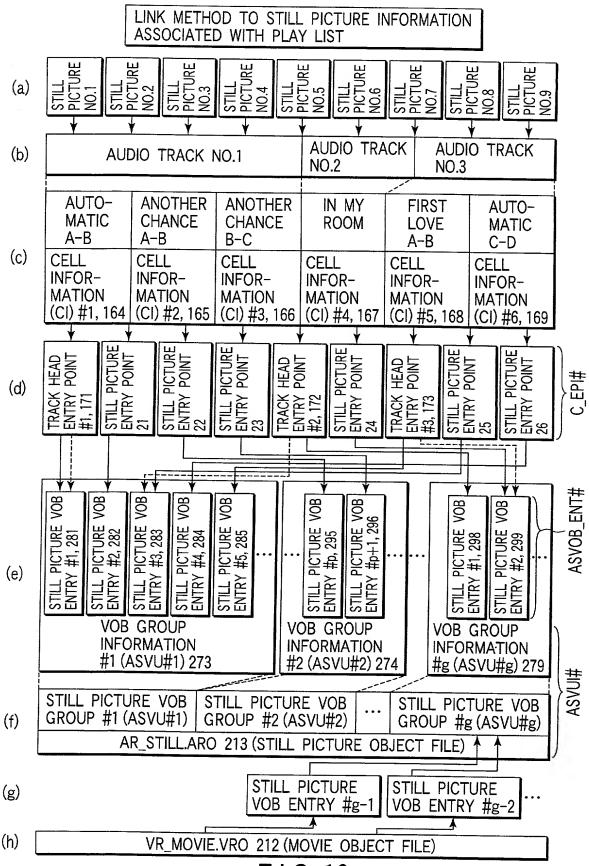


FIG. 10

LINK METHOD TO TEXT INFORMATION ASSOCIATED WITH EACH TRACK STILL PICTURE NO.4 STILL PICTURE NO.5 (a) AUDIO TRACK AUDIO TRACK (b) AUDIO TRACK NO.1 NO.2 NO.3 AUTO-**ANOTHER ANOTHER** IN MY **FIRST** AUTO-**MATIC CHANCE CHANCE ROOM** LOVE MATIC A-B A-B B-C A-B C-D (c) **CELL CELL CELL CELL CELL CELL** INFOR-INFOR-INFOR-INFOR-INFOR-INFOR-**MATION MATION MATION MATION MATION** MATION (CI) #1, 164 (CI) #2, 165 (CI) #3, 166 (CI) #4, 167 (CI) #5, 168 (CI) #6, 169 TRACK HEAD ENTRY POINT #3 (C_EPI#3) 173 X HEAD
Y POINT
EPI#1) 171 TRACK HEAD ENTRY POINT #2 (C_EPI#2) 172 (d) PRIMARY PRIMARY PRIMARY **TEXT TEXT** TEXT (e) INFOR-INFOR-INFOR-**MATION MATION MATION** 51 52 53 PRM_TXTI ITEM TEXT (IT_TXT_ ITEM TEXT (IT_TXT ITEM TEXT (IT TXT SRPN) #1, 236 SRPN) #2, 237 SRPN) #e, 238 (f) ITEM TEXT (IT TXT) 239

FIG. 11

H.

Hall and the state of the

OBLON, SPIVAK, ET AL DOCKET #: 211260US2SDIV INV: HIDEO ANDO, ET AL. SHEET <u>13</u> OF <u>43</u>

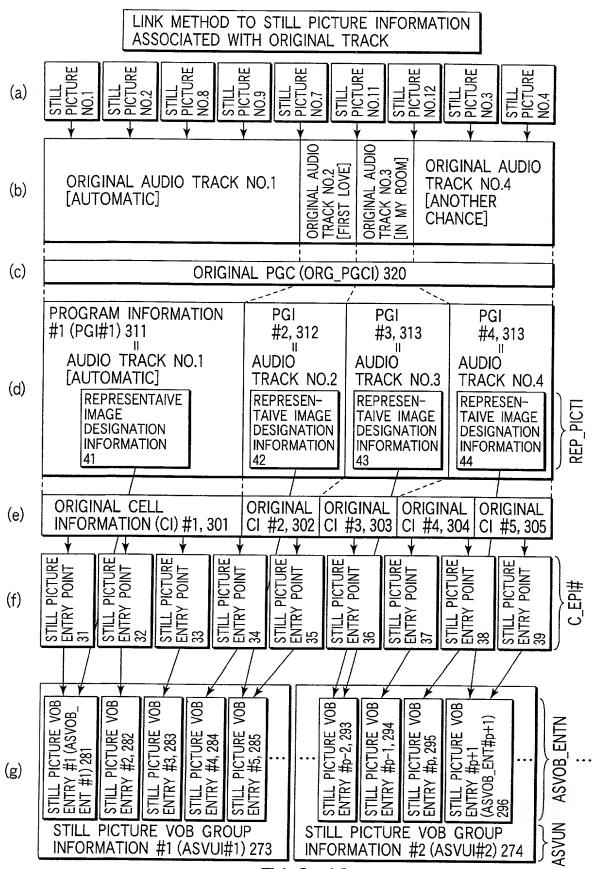


FIG. 12

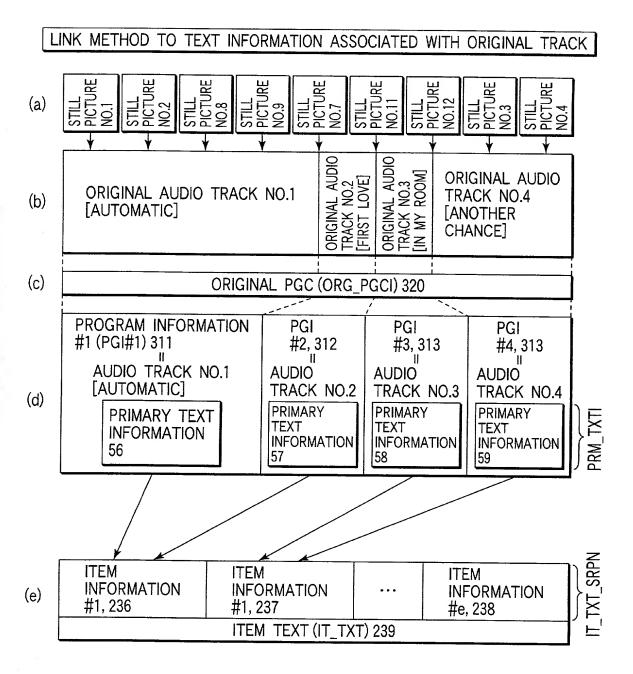
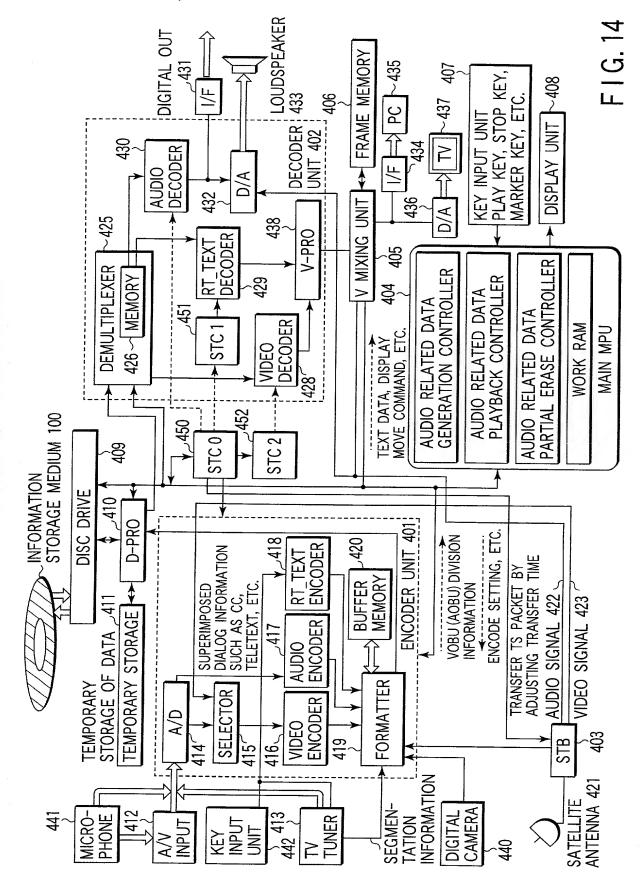
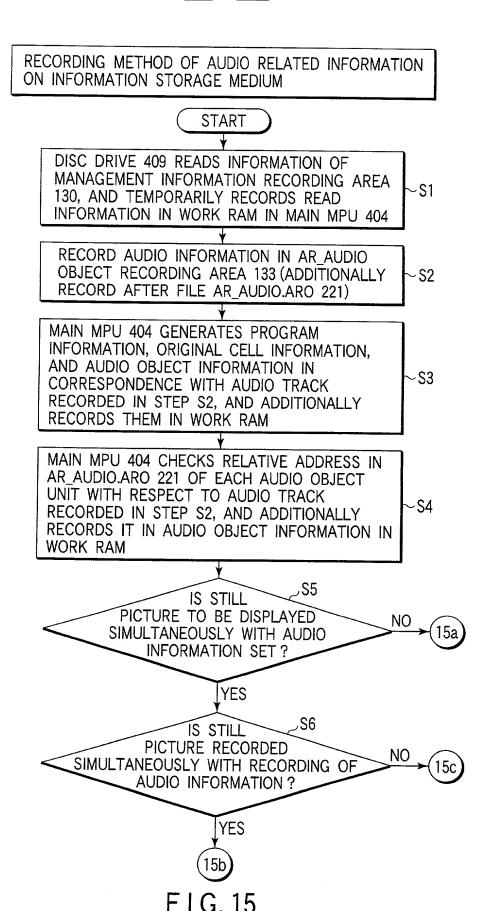


FIG. 13

OBLON, SPIVAK, ET AL DOCKET #: 211260US2SDIV INV: HIDEO ANDO, ET AL. SHEET <u>15</u> OF <u>43</u>



OBLON, SPIVAK, ET AL DOCKET #: 211260US2SDIV INV: HIDEO ANDO, ET AL. SHEET <u>16</u> OF <u>43</u>



OBLON, SPIVAK, ET AL DOCKET #: 211260US2SDIV INV: HIDEO ANDO, ET AL. SHEET <u>17</u> OF <u>43</u>

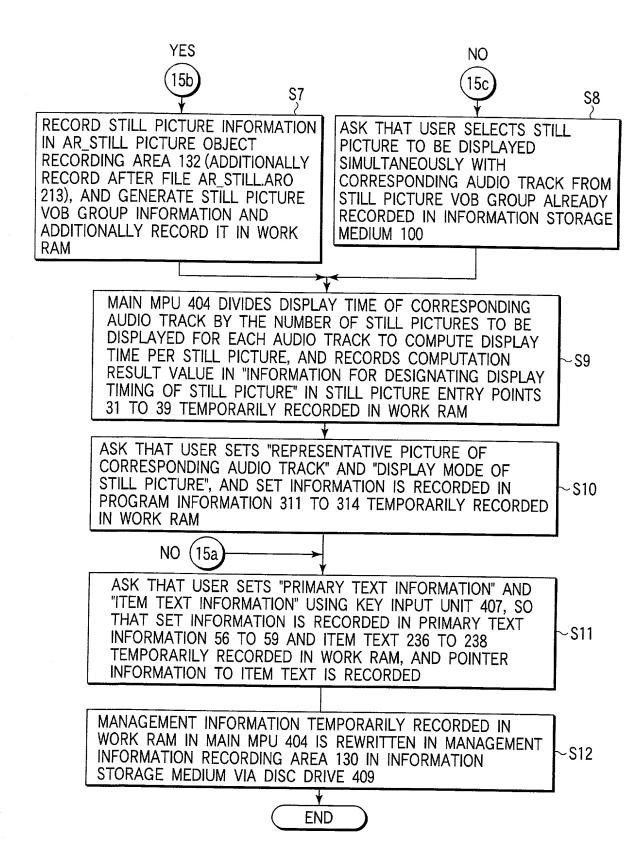


FIG. 16

OBLON, SPIVAK, ET AL DOCKET #: 211260US2SDIV INV: HIDEO ANDO, ET AL. SHEET <u>18</u> OF <u>43</u>

PARTIAL ERASE METHOD OF ORIGINAL TRACK

START

DISC DRIVE 409 READS INFORMATION OF MANAGEMENT INFORMATION RECORDING AREA 130 IN INFORMATION STORAGE MEDIUM, AND TEMPORARILY RECORDS READ INFORMATION IN WORK RAM IN MAIN MPU 409

-S21

ASK THAT USER DESIGNATES PARTIAL ERASE RANGE IN ORIGINAL TRACK (USING TIME INFORMATION)

-S22

AUDIO OBJECT INFORMATION THAT CONTAINS ORIGINAL TRACK DESIGNATED BY USER IS BROKEN UP INTO TWO AUDIO OBJECTS BEFORE AND AFTER PARTIAL ERASE RANGE DESIGNATED BY USER. EXISTING AUDIO OBJECT INFORMATION IS USED FOR FORMER HALF (BEFORE PARTIAL ERASE RANGE) AUDIO OBJECT, AND MAIN MPU 404 DELETES UNNECESSARY AUDIO OBJECT UNIT ENTRY. LIKEWISE, MAIN MPU 404 GENERATES NEW AUDIO OBJECT INFORMATION FOR LATTER HALF (AFTER PARTIAL ERASE RANGE) AUDIO OBJECT, COPIES CORRESPONDING INFORMATION OF SOURCE AUDIO OBJECT UNIT ENTRY, AND RECORDS IN WORK RAM

~S23

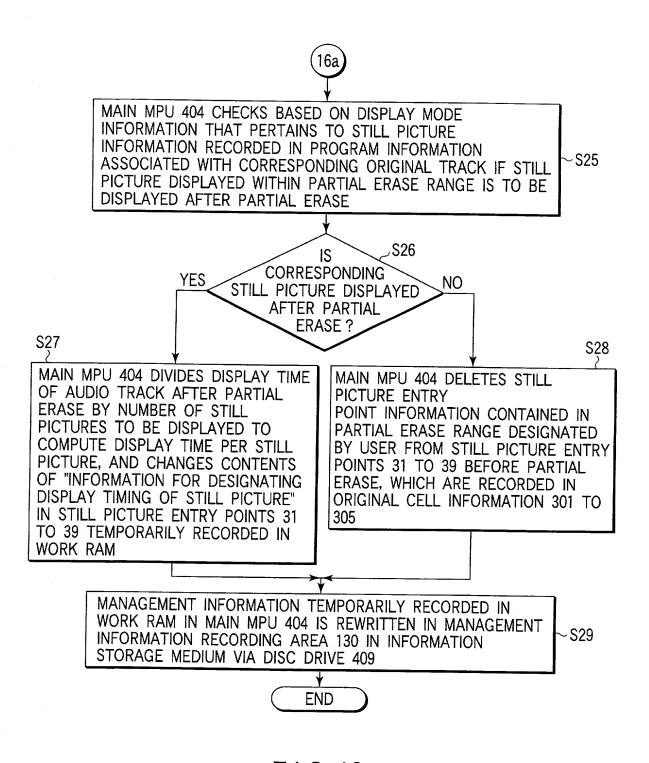
ERASE PARTIAL ERASE RANGE IN FILE AR_AUDIO.ARO 221 THAT RECORDS AUDIO OBJECT

-S24

(16a)

F I G. 17

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F I G. 18

OBLON, SPIVAK, ET AL DOCKET #: 211260US2SDIV INV: HIDEO ANDO, ET AL. SHEET 20_ OF_43_

GENERATION METHOD OF PLAY LIST CREATION DISPLAY WINDOW

START

DISC DRIVE 409 READS INFORMATION OF MANAGEMENT INFORMATION RECORDING AREA 130 IN INFORMATION STORAGE MEDIUM, AND TEMPORARILY RECORDS READ INFORMATION IN WORK RAM IN MAIN MPU 404

~S31

MAIN MPU 404 INTERPRETS INFORMATION THAT PERTAINS TO ORIGINAL TRACK RECORDED ON INFORMATION STORAGE MEDIUM 100 BASED ON PROGRAM INFORMATION 311 TO 314 TEMPORARILY RECORDED IN WORK RAM, AND GENERATES DISPLAY WINDOW CONTENTS ASSOCIATED WITH ORIGINAL TRACK 1

-S32

MAIN MPU 404 EXTRACTS INFORMATION THAT PERTAINS TO TRACK OF EACH PLAY LIST FROM INFORMATION OF TRACK HEAD ENTRY POINTS 171 TO 173 IN CELL INFORMATION 164 TO 169 THAT FORM USER-DEFINED PGC INFORMATION TABLE 145 TEMPORARILY RECORDED IN WORK RAM, AND GENERATES DISPLAY WINDOW CONTENTS ASSOCIATED WITH PLAY LIST 2

~S33

MAIN MPU 404 COMPOSITES (OR MIXES) DISPLAY WINDOWS GENERATED IN STEPS S32 AND S33, AND TRANSFERS COMPOSITED WINDOW TO V MIXING UNIT

-S34

DISPLAY 408 DISPLAYS DISPLAY WINDOW GENERATED IN MAIN MPU 404 VIA D/A CONVERTER 436

~S35

END

FIG. 19

OBLON, SPIVAK, ET AL DOCKET #: 211260US2SDIV INV: HIDEO ANDO, ET AL. SHEET 21_ OF_43_

CREATION METHOD OF PLAY LIST

START

DISC DRIVE 409 READS INFORMATION OF MANAGEMENT INFORMATION RECORDING AREA 130 IN INFORMATION STORAGE MEDIUM, AND TEMPORARILY RECORDS READ INFORMATION IN WORK RAM IN MAIN MPU 404

-S41

DISPLAY WINDOW OF ORIGINAL TRACK I AND PLAY LIST BY STEPS OF FIG. 19

~S42

ASK THAT USER INPUTS RELATIONSHIP BETWEEN NEW TRACK TO BE CREATED AND ORIGINAL TRACK WHILE OBSERVING DISPLAYED WINDOW

~S43

ASK THAT, WHILE OBSERVING DISPLAYED WINDOW, USER INPUTS DISPLAY MODE 8 ASSOCIATED WITH NEW TRACK TO BE CREATED, REPRESENTATIVE PICTURE, AND STILL PICTURE SETUP CONDITION (ORIGINAL: DISPLAY SAME STILL PICTURES AS THOSE SET IN ORIGINAL TRACK, NEWLY SET: USER SETS NEW STILL PICTURES)

-S44

ADDITIONALLY SET NEW CELL INFORMATION 164 TO 169 IN CORRESPONDING USER-DEFINED PGC INFORMATION 156, 157 TEMPORARILY RECORDED IN WORK RAM IN MAIN MPU 404, AND ADDITIONALLY RECORD TRACK HEAD ENTRY POINTS 171 TO 173 IN CELL INFORMATION CORRESPONDING TO CELL WHICH IS LOCATED AT HEAD POSITION IN NEW TRACK SET BY USER

~S45

ADDITIONALLY RECORD DISPLAY MODE DESIGNATED BY USER, DESIGNATION INFORMATION OF REPRESENTATIVE PICTURE, AND DISPLAY RANGE OF REPRESENTATIVE AUDIO IN TRACK HEAD ENTRY POINTS 171 TO 173 SET IN S45

-S46

18a

OBLON, SPIVAK, ET AL DOCKET #: 211260US2SDIV INV: HIDEO ANDO, ET AL. SHEET 22_OF_43_

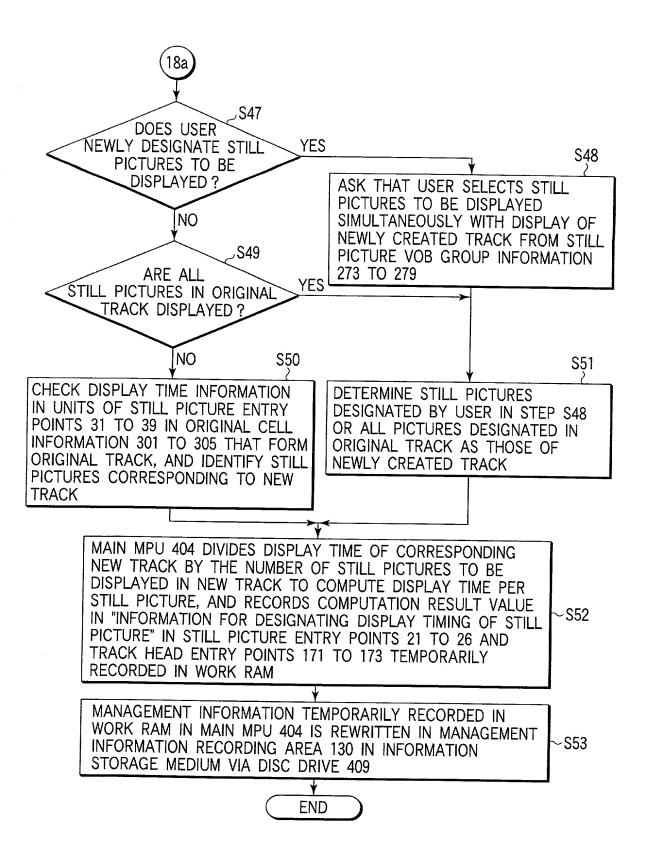


FIG. 21

OBLON, SPIVAK, ET AL DOCKET #: 211260US2SDIV INV: HIDEO ANDO, ET AL. SHEET 23 OF 43

METHOD OF USING VIDEO INFORMATION AS STILL PICTURE INFORMATION TO BE DISPLAYED SIMULTANEOUSLY WITH AUDIO INFORMATION

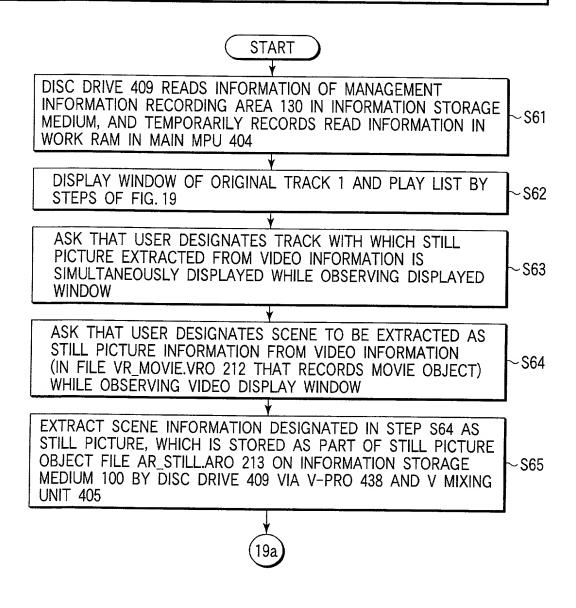


FIG. 22

OBLON, SPIVAK, ET AL DOCKET #: 211260US2SDIV INV: HIDEO ANDO, ET AL. SHEET _24_ OF_43_

19a

ADDITIONALLY RECORD NEW STILL PICTURE VOB GROUP INFORMATION #g 279 AND STILL PICTURE VOB ENTRY #2 299 IN WORK RAM IN MAIN MPU 404 IN CORRESPONDENCE WITH STILL PICTURE WHICH IS EXTRACTED FROM VIDEO AND RECORDED ON INFORMATION STORAGE MEDIUM 100 IN STEP S65

~S66

MAIN MPU 404 CHANGES STILL PICTURE INFORMATION
DESIGNATED BY TRACK HEAD ENTRY POINT #2 172 AND STILL
PICTURE ENTRY POINT 24 IN CELL INFORMATION #4 167
CORRESPONDING TO TRACK DESIGNATED BY USER IN STEP S63
TO STILL PICTURE VOB ENTRIES #1 298 AND #2 299
GENERATED IN STEP S66

-S67

MAIN MPU 404 DIVIDES DISPLAY TIME OF CORRESPONDING TRACK BY THE NUMBER OF STILL PICTURES TO BE DISPLAYED IN TRACK TO COMPUTE DISPLAY TIME PER STILL PICTURE, AND RECORDS COMPUTATION RESULT IN "INFORMATION FOR DESIGNATING DISPLAY TIMING OF STILL PICTURE" IN STILL PICTURE ENTRY POINT 24 AND TRACK HEAD ENTRY POINT 172 TEMPORARILY RECORDED IN WORK RAM

-S68

MANAGEMENT INFORMATION TEMPORARILY RECORDED IN WORK RAM IN MAIN MPU 404 IS REWRITTEN IN MANAGEMENT INFORMATION RECORDING AREA 130 IN INFORMATION STORAGE MEDIUM VIA DISC DRIVE 409

S69

END

FIG. 23

OBLON, SPIVAK, ET AL DOCKET #: 211260US2SDIV INV: HIDEO ANDO, ET AL. SHEET _25_ OF_43_

PLAYBACK SEQUENCE FOR PLAYING BACK AUDIO INFORMATION IN UNITS OF TRACKS

START

DISC DRIVE 409 READS INFORMATION OF MANAGEMENT INFORMATION RECORDING AREA 130 IN INFORMATION STORAGE MEDIUM, AND TEMPORARILY RECORDS READ INFORMATION IN WORK RAM IN MAIN MPU 404

-S71

-S72

-S73

S74

-S75

S76

MAIN MPU 404 INTERPRETS INFORMATION THAT PERTAINS TO ORIGINAL TRACK RECORDED ON INFORMATION STORAGE MEDIUM 100 BASED ON PROGRAM INFORMATION 311 TO 314 TEMPORARILY RECORDED IN WORK RAM, AND GENERATES DISPLAY WINDOW CONTENTS ASSOCIATED WITH ORIGINAL TRACK 1

MAIN MPU 404 EXTRACTS INFORMATION THAT PERTAINS TO TRACK OF EACH PLAY LIST FROM INFORMATION OF TRACK HEAD ENTRY POINTS 171 TO 173 IN CELL INFORMATION 164 TO 169 THAT FORM USER-DEFINED PGC INFORMATION TABLE 145 TEMPORARILY RECORDED IN WORK RAM, AND GENERATES DISPLAY WINDOW CONTENTS ASSOCIATED WITH PLAY LIST 2

MAIN MPU 404 COMPOSITES (OR MIXES) DISPLAY WINDOWS GENERATED IN STEPS S72 AND S73, AND TRANSFERS COMPOSITED WINDOW TO V MIXING UNIT

DISPLAY 408 DISPLAYS DISPLAY WINDOW GENERATED IN MAIN MPU 404 VIA D/A CONVERTER 436

ASK THAT USER DESIGNATES SPECIFIC AUDIO TRACK IN DISPLAY WINDOW SHOWN IN FIGS. 6A AND/OR 6B DISPLAYED ON DISPLAY 408, AND PRESSES PLAYBACK BUTTON OF REPRESENTATIVE AUDIO

(20a)

FIG. 24

OBLON, SPIVAK, ET AL DOCKET #: 211260US2SDIV INV: HIDEO ANDO, ET AL. SHEET 26_OF_43_



MAIN MPU 404 READS PLAYBACK START TIME AND PLAYBACK END TIME OF REPRESENTATIVE AUDIO FROM "INFORMATION FOR DESIGNATING DISPLAY RANGE OF REPRESENTATIVE AUDIO INDICATING CONTENTS OF CORRESPONDING AUDIO TRACK" IN TRACK HEAD ENTRY POINTS 171 TO 173 OR PROGRAM INFORMATION 311 TO 314 SHOWN IN FIGS. 9A AND 9B

~S77

MAIN MPU 404 COMPUTES PLAYBACK START ADDRESS AND PLAYBACK END ADDRESS IN AR_AUDIO.ARO 221 THAT RECORDS INFORMATION OF REPRESENTATIVE AUDIO USING INFORMATION OF AUDIO OBJECT UNIT ENTRIES #1 241 TO #h 248 IN AUDIO OBJECT INFORMATION #1 196 TO #i 197

~S78

DISC DRIVE 409 PLAYS BACK PREDETERMINED ADDRESS RANGE IN AR_AUDIO.ARO 211, AND AFTER PLAYBACK INFORMATION IS DECODED BY DECODER UNIT 402, DECODED DATA IS OUTPUT AS SOUND VIA LOUDSPEAKER 433, SO THAT USER LISTENS TO THAT REPRESENTATIVE AUDIO TO CHECK IF IT IS AUDIO TRACK HE OR SHE WANTS TO LISTEN TO

~S79

ASK THAT USER DESIGNATES PLAYBACK RANGE AND PRESSES PLAYBACK BUTTON AFTER CONFIRMING CONTENTS BY LISTENING TO REPRESENTATIVE AUDIO

~S80

MAIN MPU 404 DETERMINES RANGE IN ORIGINAL PGC INFORMATION 144 OR USER-DEFINED PGC INFORMATION 156, 157, WHICH CORRESPONDS TO TRACK RANGE DESIGNATED BY USER USING MANAGEMENT INFORMATION TEMPORARILY RECORDED IN WORK RAM

~S81

MAIN MPU 404 PLAYS BACK OBJECT INFORMATION FROM INFORMATION STORAGE MEDIUM 100 IN UNITS OF TRACKS IN ACCORDANCE WITH ORDER OF PROGRAM INFORMATION 311 TO 314 OR OF CELL INFORMATION 164 TO 1169 ARRANGED IN ORIGINAL PGC INFORMATION 144 OR IN USER-DEFINED PGC INFORMATION 156, 157 TEMPORARILY RECORDED IN WORK RAM, AND OUTPUTS AND DISPLAYS IN UNITS OF TRACKS

~S82

END

AUDIO MANAGER

(RTR_AMG)

OBLON, SPIVAK, ET AL **DOCKET #: 211260US2SDIV** INV: HIDEO ANDO, ET AL. SHEET <u>27</u> OF <u>43</u>

RTR AUDIO MANAGER **INFORMATION** (RTR_AMGI) (MANDATORY) AUDIO FILE INFORMATION TABLE (AUDFIT) (MANDATORY) AUDIO STILL VIDEO FILE INFORMATION TABLE (ASVFIT) (MANDATORY) REAL TIME RECORDING ORIGINAL PGC INFORMATION (ORG_PGCI) (MANDATORY) USER DEFINED PGC INFORMATION TABLE (UD PGCIT) (MANDATORY) WHEN UD PGC EXISTS) TEXT DATA MANAGER (TXTDT_MG) (OPTIONAL) MANUFACTURE'S INFORMATION TABLE (OPTIONAL) (MNFIT)

(UD_PGCIT) UD PGCIT INFORMATION (UD_PGCITI) UD PGCI SEARCH POINTER #1 (UD_PGCI_SRP#1) UD_PGCI SEARCH POINTER #n (UD_PGCI_SRP#n) USER DEFINED PGC **INFORMATION #1** (UD_PGCI#1) USER DEFINED PGC INFORMATION #n (UD_PGCI#n)

FIG. 26

(PGCI#i)

OBLON, SPIVAK, ET AL **DOCKET #: 211260US2SDIV** INV: HIDEO ANDO, ET AL. SHEET <u>28</u> OF <u>43</u>

PGC GENERAL INFORMATION (PGC_GI) PG INFORMATION #1 (PGI#1) PG INFORMATION #m (PGI#m) PGC INFORMATION #i CI SEARCH POINTER #1 (CI SRP#1) CELL GENERAL INFORMATION (C GI) CI SEARCH POINTER CELL ENTRY POINT #n (CI_SRP#n) **INFORMATION #1 CELL INFORMATION #1** (C_EPI#1) (CI#1) CELL ENTRY POINT CELL INFORMATION #n INFORMATION #n (CI#n) (C_EPI#n)

FIG. 27

OBLON, SPIVAK, ET AL DOCKET #: 211260US2SDIV INV: HIDEO ANDO, ET AL. SHEET 29_OF_43_

ENTRY POINTS IN THE ORIGINAL PGC

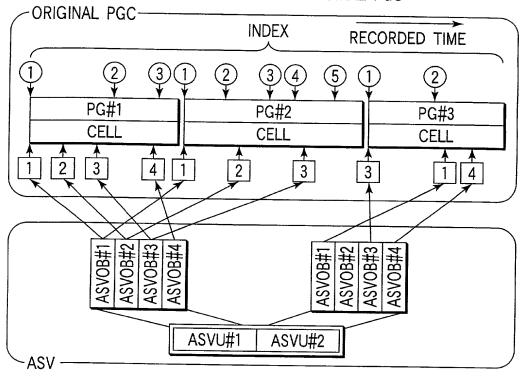


FIG. 28A

ENTRY POINTS IN THE USER DEFINED PGC

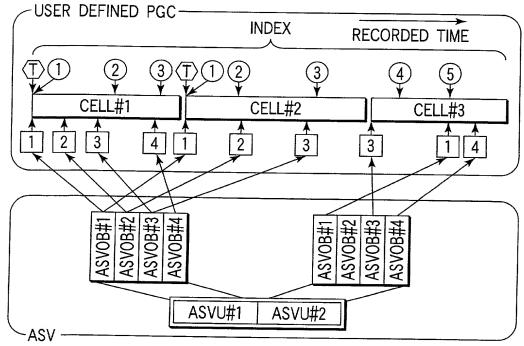


FIG. 28B

OBLON, SPIVAK, ET AL DOCKET #: 211260US2SDIV INV: HIDEO ANDO, ET AL. SHEET 30_ OF_43_

C_EPI (TYPE A1)

(DESCRIPTION ORDER)

RBP	FIELD NAME	CONTENTS	NUMBER OF BYTES
0	EP_TY	ENTRY POINT TYPE	1BYTE
1 TO 6	EP_PTM	PTM OF ENTRY POINTS	6BYTES
7 TO 134	PRM_TXT	PRIMARY TEXT INFORMATION	128BYTES
135 TO 136	IT_TXT_SRPN	IT_TXT SEARCH POINTER INFORMATION	2BYTES
137 TO 139	REP_PICTI	REPRESENTATIVE PICTURE INFORMATION	3BYTES
TOTAL			140BYTES

(RBP 0) EP_TY
DESCRIBES EP TYPE OF THIS ENTRY POINT

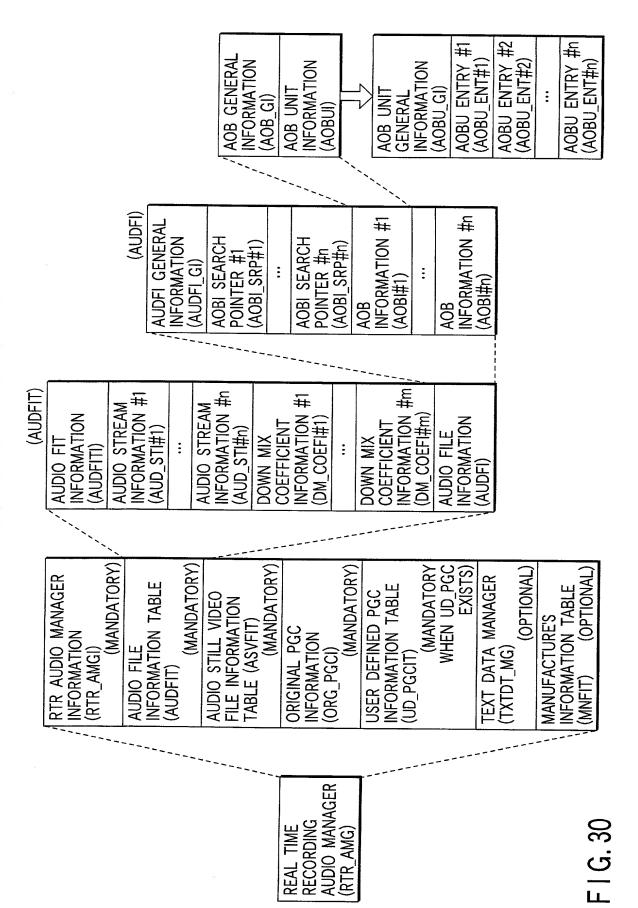
	b7	b6	b5	b4	b3	b2	b1	b0
ſ	EP.	_TY1	EP_	TY2		RESE	RVED	

 $\mbox{EP_TY1} \cdots \mbox{'01b'}$ SHALL BE DESCRIBED FOR TYPE A1 ENTRY POINT $\mbox{EP_TY2} \cdots \mbox{'00b'}$ SHALL BE DESCRIBED FOR TYPE A1 ENTRY POINT

EP_PTM
ALL BYTES SHALL BE SET TO '00h'

FIG. 29

OBLON, SPIVAK, ET AL DOCKET #: 211260US2SDIV INV: HIDEO ANDO, ET AL. SHEET <u>31</u> OF <u>43</u>



OBLON, SPIVAK, ET AL DOCKET #: 211260US2SDIV INV: HIDEO ANDO, ET AL. SHEET 32 OF 43

AOBU ENTRY (AOBU_ENT)

b15	b14	b13	b12	b11	b10	b9	b8
	- <u></u>	RES	ERVED			AOBU_SZ	(UPPER)
_b7	b6	b5	b4	b3	b2	b1	b0
			AOBU_SZ	(LOWER)			

AOBU_SZ ··· DESCRIBES THE SIZE OF THIS AOBU. THE SIZE IS SPECIFIED BY THE NUMBER OF PACKS IN THIS AOBU

FIG. 31

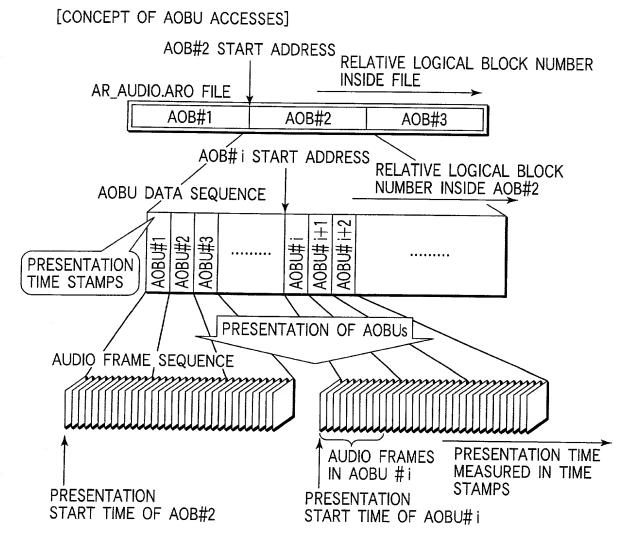


FIG. 32

OBLON, SPIVAK, ET AL DOCKET #: 211260US2SDIV INV: HIDEO ANDO, ET AL. SHEET 33_OF_43_

[CONCEPT OF AOBU ENTRIES]

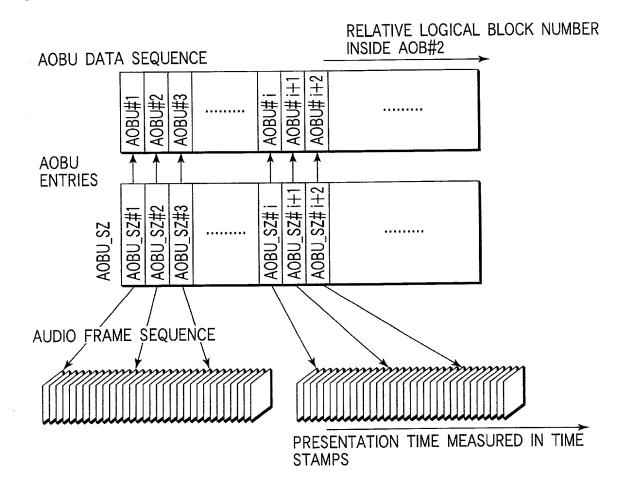
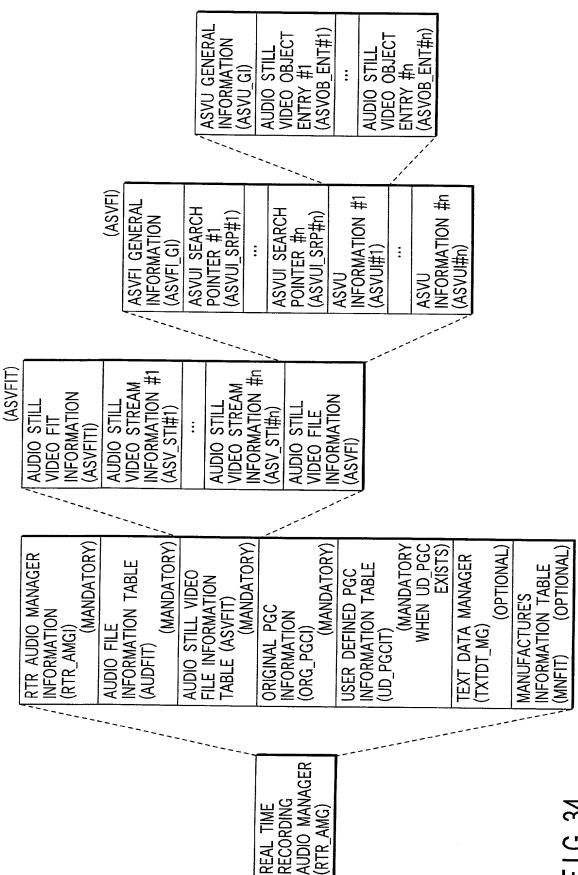


FIG. 33

OBLON, SPIVAK, ET AL DOCKET #: 211260US2SDIV INV: HIDEO ANDO, ET AL. SHEET <u>34</u> OF <u>43</u>



REAL TIME

(RTR AMG)

F I G. 34

OBLON, SPIVAK, ET AL DOCKET #: 211260US2SDIV INV: HIDEO ANDO, ET AL. SHEET <u>35</u> OF <u>43</u>

ASVOB_ENT

(DESCRIPTION ORDER)

RBP	FIELD NAME	CONTENTS	NUMBER OF BYTES
0	ASVOB_ENT_TY	ASVOB ENTRY TYPE	1BYTE
1	ASVOB_SZ	SIZE OF ASVOB	1BYTE
TOTAL			2BYTES

ASVOB_ENT_TY
DESCRIBES TE IN THE FOLLOWING FORMAT

b15	b14	b13	b12	b11	b10	b9	b8
RESE	RVED	TE		R	RESERVED		

TE ... 00b : THIS ASVOB IS IN NORMAL STATE

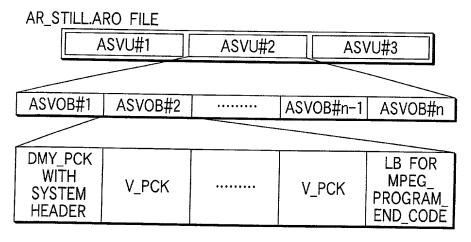
01b: THIS ASVOB IS IN TEMPORARILY ERASED STATE

ASVOB_SZ

DESCRIBES THE SIZE OF ASVOB IN LBs (LOGICAL BLOCKS)

FIG. 35

[STRUCTURE OF THE ASVOB]



OBLON, SPIVAK, ET AL DOCKET #: 211260US2SDIV INV: HIDEO ANDO, ET AL. SHEET <u>36</u> OF <u>43</u>

[CONCEPT OF ASVOB ACCESS]

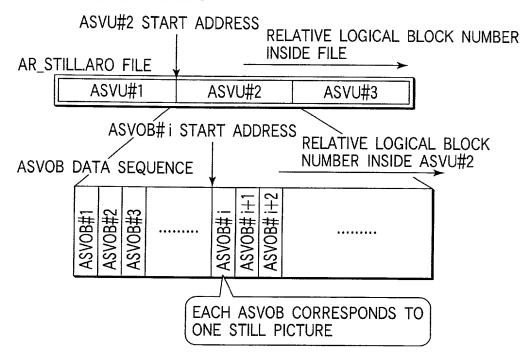


FIG. 37

REAL TIME RECORDING

AUDIO MANAGER

(RTR_AMG)

OBLON, SPIVAK, ET AL DOCKET #: 211260US2SDIV INV: HIDEO ANDO, ET AL. SHEET 37_ OF_43_

RTR AUDIO MANAGER INFORMATION (RTR AMGI) (MANDATORY) AUDIO FILE INFORMATION TABLE (AUDFIT) (MANDATORY) AUDIO STILL VIDEO FILE INFORMATION TABLE (ASVFIT) (MANDATORY) (TXTDT MG) ORIGINAL PGC TEXT DATA INFORMATION INFORMATION (ORG PGCI) (TXTDTI) (MANDATORY) IT_TXT SEARCH USER DEFINED PGC POINTER #1 INFORMATION TABLE (IT_TXT_SRP#1) (UD_PGCIT) (MANDATORY IT_TXT SEARCH WHEN UD_PGC POINTER #n EXISTS) (IT_TXT_SRP#n) TEXT DATA MANAGER ITEM TEXT (TXTDT_MG) (IT_TXT) (OPTIONAL) MANUFACTURE'S INFORMATION TABLE ITEM TEXT (MNFIT) (OPTIONAL) (IT_TXT)

FIG. 38

OBLON, SPIVAK, ET AL DOCKET #: 211260US2SDIV INV: HIDEO ANDO, ET AL. SHEET 38_OF_43_

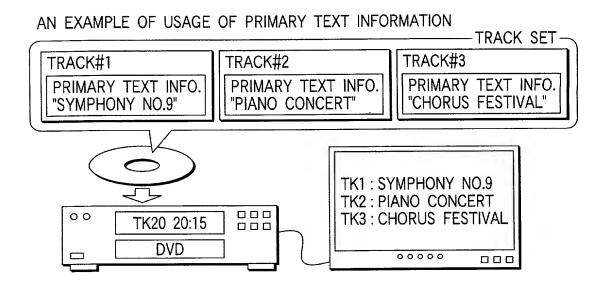


FIG. 39

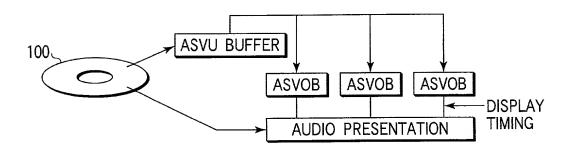
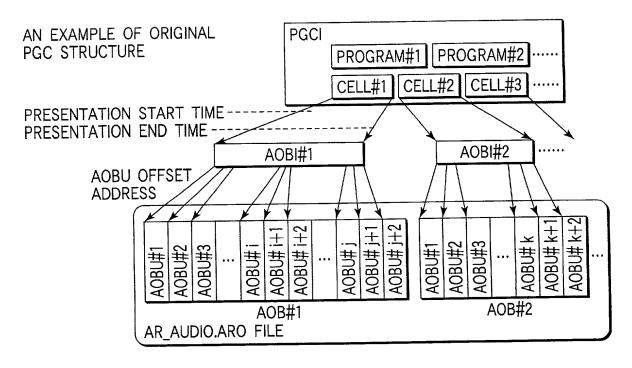


FIG. 40

OBLON, SPIVAK, ET AL DOCKET #: 211260US2SDIV INV: HIDEO ANDO, ET AL. SHEET 39 OF 43



F I G. 41

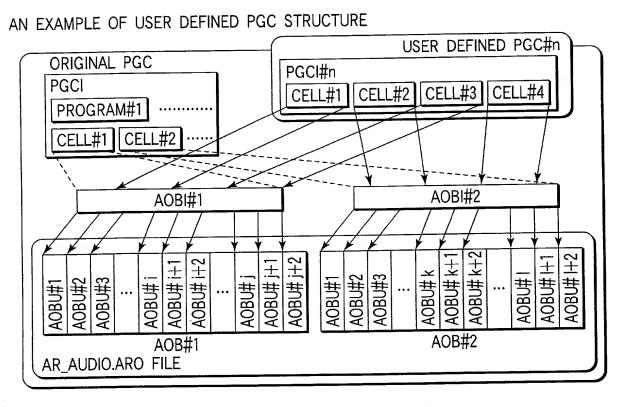
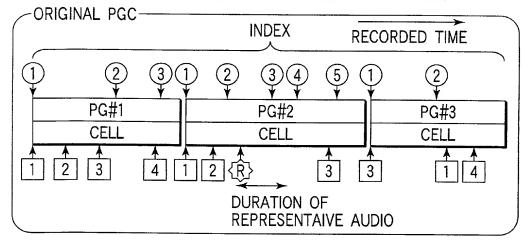


FIG. 42

OBLON, SPIVAK, ET AL DOCKET #: 211260US2SDIV INV: HIDEO ANDO, ET AL. SHEET 40 OF 43

AN EXAMPLE OF ENTRY POINT FOR REPRESENTATIVE AUDIO



(i): ENTRY POINT FOR INDEX (i=1,2,3,...)

j : ENTRY POINT FOR DISPLAY LIST (j=1,2,3,···)

(R): ENTRY POINT FOR REPRESENTATIVE AUDIO

FIG. 43

C_EPI (TYPE D2)

(DESCRIPTION ORDER)

RBP	FIELD NAME	CONTENTS	NUMBER OF BYTES
0	EP_TY	ENTRY POINT TYPE	1BYTE
1 TO 6	EP_PTM	PTM OF ENTRY POINTS	6BYTES
7 TO 12	RA_DUR	REPRESENTATIVE AUDIO DURATION	6BYTES
TOTAL			13BYTES

EP_TY
DESCRIBES EP TYPE OF THIS ENTRY POINT

b7b6	b5	b4	b3	b2	b1	b0
EP_TY1	EP_	TY2		RESE	RVED	

EP_TY1 ··· '00b' SHALL BE DESCRIBED FOR TYPE D2 ENTRY POINT EP_TY2 ··· '11b' SHALL BE DESCRIBED FOR TYPE D2 ENTRY POINT

OBLON, SPIVAK, ET AL DOCKET #: 211260US2SDIV INV: HIDEO ANDO, ET AL. SHEET 41_ OF_43_

C_EPI (TYPE B1)

(DESCRIPTION ORDER)

RBP	FIELD NAME	CONTENTS	NUMBER OF BYTES
0	EP_TY	ENTRY POINT TYPE	1BYTE
1 TO 6	EP_PTM	PTM OF ENTRY POINTS	6BYTES
7	IDXN	INDEX NUMBER	1BYTE
8 TO 135	PRM_TXT	PRIMARY TEXT INFORMATION	128BYTES
TOTAL			136BYTES

EP_TY
DESCRIBES EP TYPE OF THIS ENTRY POINT

b7	b6	b5	b4	b3	b2	b1	b0
EP.	_TY1	EP_	TY2		RESE	RVED	

EP_TY1 ··· '01b' SHALL BE DESCRIBED FOR TYPE B1 ENTRY POINT EP_TY2 ··· '01b' SHALL BE DESCRIBED FOR TYPE B1 ENTRY POINT

FIG. 45

C_EPI (TYPE B2)

(DESCRIPTION ORDER)

RBP	FIELD NAME	CONTENTS	NUMBER OF BYTES
0	EP_TY	ENTRY POINT TYPE	1BYTE
1 TO 6	EP_PTM	PTM OF ENTRY POINTS	6BYTES
7	IDXN	INDEX NUMBER	1BYTE
TOTAL			8BYTES

EP_TY
DESCRIBES EP TYPE OF THIS ENTRY POINT

b7	b6	b5	b4	b3	b2	b1	b0
EP_	TY1	EP_	TY2		RESE	RVED	

EP_TY1 ··· '00b' SHALL BE DESCRIBED FOR TYPE B2 ENTRY POINT EP_TY2 ··· '01b' SHALL BE DESCRIBED FOR TYPE B2 ENTRY POINT

OBLON, SPIVAK, ET AL DOCKET #: 211260US2SDIV INV: HIDEO ANDO, ET AL. SHEET 42 OF 43

C_EPI (TYPE C2)

(DESCRIPTION ORDER)

RBP	FIELD NAME	CONTENTS	NUMBER OF BYTES
0	EP_TY	ENTRY POINT TYPE	1BYTE
1 TO 6	EP_PTM	PTM OF ENTRY POINTS	6BYTES
7	ASVOB_ENTN	ENTRY NUMBER OF ASVOB	1BYTE
8	HOME_DLISTN	HOME DLIST NUMBER	1BYTE
9	S_EFFECT	START EFFECT	1BYTE
10	E_EFFECT	END EFFECT	1BYTE
11 TO 12	MAX_DUR	MAXMUM DURATION TIME	2BYTES
13 TO 14	MIN_DUR	MINIMUM DURATION TIME	2BYTES
TOTAL			15BYTES

EP_TY
DESCRIBES EP TYPE OF THIS ENTRY POINT

b7	b6	b5	b4	b3	b2	b1	b0
EP_	TY1	EP_	TY2		RESE	RVED	

EP_TY1 ··· '00b' SHALL BE DESCRIBED FOR TYPE C2 ENTRY POINT EP_TY2 ··· '10b' SHALL BE DESCRIBED FOR TYPE C2 ENTRY POINT

FIG. 47

PGC_GI

(DESCRIPTION ORDER)

RBP	FIELD NAME	CONTENTS	NUMBER OF BYTES
0	RESERVED	RESERVED	1BYTE
1	PG_Ns	NUMBER OF PGs	1BYTE
2 TO 3	CI_SRP_Ns	NUMBER OF CI_SRPs	2BYTES
TOTAL			4BYTES

PG Ns

DESCRIBES THE NUMBER OF PGs IN THIS PGC IN CASE OF USER DEFINED PGC, PG Ns SHALL BE SET TO '0'

NOTE: THE MAXIMUM NUMBER OF PGs FOR THE ORIGINAL PGC IS '99'

CI_SRP_Ns

DESCRIBES THE NUMBER OF CL SRPs IN THIS PGC NOTE: THE MAXIMUM NUMBER OF CL SRPs IS '999'

OBLON, SPIVAK, ET AL **DOCKET #: 211260US2SDIV** INV: HIDEO ANDO, ET AL. SHEET <u>43</u> OF <u>43</u>

(DESCRIPTION ORDER)

RBP	FIELD NAME	CONTENTS	NUMBER OF BYTES
0	RESERVED	RESERVED	1BYTE
1	PG_TY	PROGRAM TYPE	1BYTE
2 TO 3	C_Ns	NUMBER OF CELLS IN THIS PG	2BYTES
4 TO 131	PRM_TXTI	PRIMARY TEXT INFORMATION	128BYTES
132 TO 133	IT_TXT_SRPN	IT_TXT SEARCH POINTER NUMBER	2BYTES
134 TO 141	REP_PICTI	REPRESENTATIVE PICTURE INFORMATION	8BYTES
TOTAL			142BYTES

PG_TY

DESCRIBES PROGRAM TYPE OF THIS PG

b7	b6	b5	b4	b3	b2	b1	b0
PROTEC	CT			RESERVED	1	•	

PROTECT ... 0b: THIS PG IS NOT IN PROTECTED STATE

1b: THIS PG IS IN PROTECTED STATE

NOTE: WHEN A PG IS IN PROTECTED STATE, ALL THE AOBS REFERRED AND UTILIZED IN THE PRESENTATION OF THAT PG SHALL NOT BE TEMPORARILY OR PERMANENTLY ERASED.

PROTECT FLAGS SHALL NOT BE SET TO '1b' UNLESS ALL THE AOBS AND ASVOBS REFERRED BY THIS PG ARE IN NOMAL STATE

FIG. 49

REP_PICTI

(DESCRIPTION ORDER)

RBP FIELD NAME		CONTENTS	NUMBER OF BYTES
134 TO 135	ASVUN	ASVU NUMBER	2BYTES
136	ASVOB_ENTN	ASVOB_ENT NUMBER	1BYTE
137 TO 141	RESERVED	RESERVED	5BYTES
TOTAL			8BYTES

ASVUN

DESCRIBES THE ASVU NUMBER IN WHICH THIS REPRESENTATIVE PICTURE FOR TRACK EXISTS

ASVOB ENTN

DESCRIBES THE ASVOB_ENT NUMBER IN WHICH THIS REPRESENTATIVE PICTURE FOR TRACK EXISTS

FIG. 50